**Algorithm 1**

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| **Learning Algorithm: DTL-NN** |
|  **Input 1:** Healthy data **Input 2:** Task labeled data  |
| **Output:** DTL-NN model |
|  *# offline learning*  ***for k=1:L layers of SSAE***  |
|  ***Minimize*** |
|  ***End*** |
|  *# prior knowledge aided classification*  ***Calculate high-level features for targeted subjects***  ***Supervised learning of softmax regression by optimizing***  |
|  ***Fine tuning of the DTL-NN with task data***  ***Return***  |